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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,677	07/31/2003	Michael Fogaing	1062702	7667

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OSLER, HOSKIN & HARCOURT, LLP (AVESTOR)
1000 DE LA GAUCHETIERE STREET WEST
SUITE 2100
MONTREAL, QC H3B-4W5
CANADA

EXAMINER	
YUAN, DAH WEI D	
ART UNIT	PAPER NUMBER
1745	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/630,677	FOGAING ET AL.	
	Examiner	Art Unit	
	Dah-Wei D. Yuan	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

POLYMER BATTERIES HAVING THERMAL EXCHANGE APPARATUS

Examiner: Yuan S.N. 10/630,677 Art Unit: 1745 April 10, 2007

Detailed Action

1. The Applicant's amendment filed on February 26, 2007 was received. Claims 1,2,14 were amended.

2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on August 24, 2006.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The recitation "said resilient heat sink material being moveably positioned adjacent an inner surface of at least one of said walls" in claims 1 and 14 is not supported in the instant disclosure. The alleged support for the amendment cannot be located. If applicant believes said recitation is fully defined, it is requested that applicant indicates column and line, and/or figure with number, identifying the support.

5. The claim rejections under 35 U.S.C. 112, second paragraph, on claims 1,2,14 are withdrawn, because these claims have been amended. The term "resilient" is understood as "capable of recovering its size and shape after deformation caused by compressive stress".

Claim Rejections - 35 USC § 102

6. Claims 1-3,11 are rejected under 35 U.S.C. 102(e) as being anticipated by Shimamura et al. (US 7,008,720 B2).

With respect to claim 1, Shimamura et al. teach a polymer battery comprising a plurality of electrochemical cells, each comprising a plurality of laminates and current collecting terminal leads (8,9), surface covering layers (9a,9b) (heat sink) positioned adjacent and in mechanical contact with the terminal leads, and a battery outer sheath (3) (thermally conductive housing). See Figures 4,5, Column 2, Lines 39-60; Column 8, Lines 12-22. The material used for the terminal leads, such as Cu, Fe, and stainless steel, are considered as electrically resistive and thermally conductive. The current collecting terminal lead is considered capable of being displaced from the battery outer sheath before the assembly of the polymer battery.

With respect to claim 2, Shimamura et al. further teach the use of a welding portion (2) (low friction film) positioned between the inner surface of the housing and the surface covering layer. It is also the position of the examiner that the intended use "the film adapted to ease relative movement between said resilient heat sink material and said at least one of said walls" in the claim does not add structure to the claim. Intended use of a known component does not give it patentable weight. See *In re Thuau*, 57 USPQ 324, CCPA 979 135 F2d 344, 1943.

With respect to claim 3, Shimamura et al. teach the surface covering layers conform to the surface of the terminal leads. See Figures 4,5.

With respect to claim 11, Shimamura et al. teach the surface covering layers are extending along the length of the electrochemical cells. See Figures 4,5.

7. Claims 1-3,11 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishida et al. (US 2003/0134190 A1).

With respect to claim 1, Ishida et al. teach a polymer battery comprising a plurality of electrochemical cells, each comprising a plurality of laminates and current collecting terminal leads (109), a thermal fuse (112) (heat sink) positioned adjacent and in mechanical contact with the terminal leads, and a battery metal sheath (102) (thermally conductive housing). See Figures 1,5,21, paragraphs 8,85,103,120. The material used for the terminal leads, such as copper and aluminum, are considered as electrically resistive and thermally conductive. The current collecting terminal lead is considered capable of being displaced from the battery metal sheath before the assembly of the polymer battery.

With respect to claim 2, Ishida et al. further teach the use of a insulating resin (110b) (low friction film) positioned between the inner surface of the housing and the thermal fuse. It is also the position of the examiner that the intended use "the film adapted to ease relative movement between said resilient heat sink material and said at least one of said walls" in the claim does not add structure to the claim. Intended use of a known component does not give it patentable weight. See *In re Thuau*, 57 USPQ 324, CCPA 979 135 F2d 344, 1943.

With respect to claim 3, Ishida et al. teach the thermal fuse conforms to the surface of the terminal leads. See Figures 4,5.

With respect to claim 11, Ishida et al. teach the thermal fuse is extending along the length of the electrochemical cells. See Figures 4,5.

Claim Rejections - 35 USC § 103

8. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimamura et al. (US 7,008,720 B2) as applied to claims 1-3,11 above.

The disclosure of Shimamura et al. differs from Applicant's claims in that Shimamura et al. do not teach the surface covering layer are separated into a plurality of ribbons which adapt to circumscribe and separate each ribbon from adjacent ribbons. However, it is the position of the examiner that the claimed configuration is a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed electrochemical generator is significant. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

9. Claims 7-10,14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimamura et al. (US 7,008,720 B2) as applied to claims 1-6,11 above, and further in view of Wessman (US 6,705,418).

Shimamura et al. teach a polymer electrochemical generator as described above in Paragraph 6. However, Shimamura et al. do not teach the additional of a heat exchange

apparatus positioned adjacent to the outer surface of the housing. Wessman teaches a battery wherein the cap of the battery housing is configured with a plurality of fin-type members (projecting vanes) (444) that extend from an exteriorly exposed surface for enhancing thermal discharge of heat from the battery housing to air circulated across the fins. See Figure 8c, Column 12, Lines 22-46. Therefore, it would have been obvious to one of ordinary skill in the art to incorporate a plurality of fin-type members on the exterior surface of the housing of Shimamura et al., because Wessman teaches the use of fins to enhance thermal discharge of heat from the battery.

10. Claims 7-10,14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al. (US 2003/0134190 A1) as applied to claims 1-3,11 above, and further in view of Wessman (US 6,705,418).

Ishida et al. teach a polymer electrochemical generator as described above in Paragraph 7. However, Ishida et al. do not teach the additional of a heat exchange apparatus positioned adjacent to the outer surface of the housing. Wessman teaches a battery wherein the exterior of the battery housing is configured with a plurality of fin-type members (projecting vanes) (444) that extend from an exteriorly exposed surface for enhancing thermal discharge of heat from the battery housing to air circulated across the fins. See Figure 8c, Column 12, Lines 22-46. Therefore, it would have been obvious to one of ordinary skill in the art to incorporate a plurality of fin-type members on the exterior surface of the housing of Ishida et al., because Wessman teaches the use of fins to enhance thermal discharge of heat from the battery.

Allowable Subject Matter

11. Claims 12,13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 12,13 would be allowable because the prior art does not disclose or suggest the resilient heat sink material is a silicon elastomer compound including a thermally conductive ceramic filler.

Response to Arguments

12. Applicant's arguments filed on February 26, 2007 have been fully considered but they are not persuasive.

Applicant's principal arguments are

The terminal leads, such as copper and aluminum, cannot be considered to be electrically resistive.

In response to Applicant's arguments, please consider the following comments.

The electrical resistivity for copper and aluminum is 1.7 and 2.7 μΩ-cm, respectively. Thus both metals are electrically resistive.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (571) 272-1295. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dah-Wei D. Yuan
April 10, 2007

DAH-WEI YUAN
PRIMARY EXAMINER